

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A single computer system for running one or more software applications, ~~wherein the software applications are suitable for generating a video output, the computer system~~ comprising:
 - a processor;
 - a computer readable storage medium including instructions executable by the processor, the computer readable storage medium comprising:
 - instructions for a host operating system suitable for displaying a graphical user interface;
 - instructions for multiple guest operating systems configured to execute ~~running~~ on the single computer system in virtual machines emulated by one or more emulator programs running on the host operating system; and
 - wherein the host operating system is configured ~~[[able]]~~ to display a reduced-size continually updated representation of the video output of at least one operating system from the multiple guest operating systems that are being operated in a background mode.
2. (Previously presented) The computer system of claim 1, further comprising one or more virtual video memory components suitable for storing the video output of the operating systems.
3. (Previously presented) The computer system of claim 2, wherein the one or more of the video memory components are VRAM memory.
4. (Previously presented) The computer system of claim 2,
 - wherein the operating systems operating in a background mode are active; and
 - wherein one or more thumbnail images for the operating systems are generated from the video information stored on the video memory components at predetermined intervals while the software applications are active.

5. (Original) The computer system of claim 4, wherein the predetermined intervals are such that the thumbnail images are real-time representations of the video output from the active software applications.

6. (Original) The computer system of claim 1,
wherein the graphical user interface is a windowing environment suitable for displaying one or more windows; and
wherein the portion of the graphical user interface comprising the reduced-size representation is a window.

7. (Previously presented) The computer system of claim 1, wherein the reduced-size representation is created using a bilinear sampling technique.

8. (Previously presented) A single computer system for running one or more software applications, wherein the software applications are suitable for generating a video output, the computer system comprising:

a host operating system suitable for displaying a graphical user interface;
multiple emulated virtual machines, containing respective guest operating systems running on the single computer system, being emulated by one or more emulator programs running on the host operating system; and
wherein the host operating system is able to display for a user reduced-size continually updated representation of the video output of each virtual machine.

9. (Previously presented) The computer system of claim 8, wherein the reduced-size representations are representations of the video outputs of the virtual machines that are being operated in a background mode.

10. (Previously presented) The computer system of claim 8, further comprising a virtual video memory associated with each of the virtual machines; and

wherein the reduced-size representations are generated from the video information stored in the virtual video memory associated with each virtual machine.

11. (Currently amended) A method for displaying reduced-size images of multiple guest computer systems running on a single computer in virtual machine environments, said method comprising the steps of:

suspending one or more of the multiple guest computer systems by saving to memory in a host computer system the image of each of the suspended guest computer systems each suspended guest computer system having a virtual video adaptor;

reading in at an emulator program from memory in the host computer system the images of the suspended guest computer systems;

interpreting in the emulator program the contents of saved images of the suspended guest computer systems based on video adaptor settings of the virtual video adaptors; and

displaying reduced-size continually updated representations of the suspended guest computer systems.

12. (Currently amended) A method for displaying reduced-size images of multiple guest computer systems in virtual machine environments and executing on a single computer system, said method comprising the steps of:

reading in from memory in a host computer system the images of the guest computer systems each guest computer system having a virtual video adaptor;

interpreting in the emulator program the contents of the images of the emulated guest computer systems based on video adaptor settings of the virtual video adaptors;

displaying reduced-size continually updated representations of the guest computer systems; and

periodically updating the reduced-size representations of the guest computer systems.

13. (Previously presented) The method of claim 12 wherein the step of displaying reduced-size representations of the computer systems are performed on a computer system comprising:

the host operating system suitable for displaying a graphical user interface.

14. (Previously presented) The method of claim 13 wherein the host operating system is able to display for a user reduced-size representations of the video output of computer systems that are being operated in a background mode.

15. (Previously presented) The method of claim 14 wherein the computer systems further comprise one or more virtual video memory components suitable for storing the video output of the computer systems.

16. (Previously presented) The method of claim 15 wherein one or more of the video memory components are VRAM.

17. (Canceled)

18. (Previously presented) The method of claim 12 wherein the host operating system is able to display for a user reduced-size representations of the video output of each computer system being operated in a background mode.

19. (Previously presented) The method of claim 18 wherein the reduced-size representations are representations of the video outputs of the virtual machines that are being operated in the background mode.

20. (Previously presented) The method of claim 19 wherein the computer systems further comprises one or more virtual video memory components suitable for storing the video output of the computer systems.

21. (Currently amended) A method of displaying images on a display coupled with a host computer, the method comprising:

providing a plurality of virtual machines and respective guest operating systems on the host computer that is a single computer, each virtual machine comprising a virtualized computer environment hosting a corresponding one of the guest operating systems on the host computer, each virtualized computer environment having a virtual video adaptor, where the operating systems hosted on the virtual machines are executing concurrently on the same host computer; [[and]]

storing video output from the virtual video adaptors in memory;

interpreting the video output from the virtual video adaptors based on video adaptor settings of the virtual video adaptors; and

displaying a screen associated with a host operating system on the display together with on the display thumbnail images generated from the interpreted video output from the virtual video adaptors comprising reductions of, respectively, continually updated display screen images generated by the virtual machines.

22. (Previously presented) The method according to claim 21, wherein the thumbnail images are based on image data from video RAMs of the virtual machines.

23. (Currently amended) A method of displaying an image on a display coupled with a host computer, the method comprising:

providing a first virtual machine running a first guest operating system, the first virtual machine having a first virtual video adaptor, and a second virtual machine running a second guest operating system, the second virtual machine having a second virtual video adaptor, wherein both guest operating systems are configured for concurrent execution on the host computer that is a single computer; [[and]]

storing video output from the first and second video adaptors in memory;

interpreting the video output from the first virtual video adaptor based on video adaptor settings of the first virtual video adaptor and interpreting the video output from the second virtual video adaptor based on video adaptor settings of the second virtual video adaptor;

generating a first and second thumbnail based on the interpreted video output from the first and second virtual video adaptors; and

concurrently displaying, on the display, ~~[[a]]~~ the first thumbnail of image output ~~of the first virtual machine~~ and ~~[[a]]~~ the second thumbnail of image output ~~of the second virtual machine~~, wherein said first thumbnail and said second thumbnail are continually updated.

24. (Previously presented) The method according to claim 23, further comprising concurrently displaying real time thumbnail videos of, respectively, the video outputs of the virtual machines.

25. (Previously presented) The method according to claim 23, wherein first thumbnail is derived from video RAM of the first virtual machine, and the second thumbnail is derived from video RAM of the second virtual machine.

26. (Previously presented) The method according to claim 23, further comprising allowing a user to interact with the thumbnails to control the virtual machines.

27. (Previously presented) The method according to claim 23, wherein displaying of the thumbnails is accomplished by accessing video RAMs of the virtual machines.

28. (Previously presented) The method according to claim 23, wherein the thumbnail images comprise reduced versions of images generated for display by the virtual machines.

29. (Previously presented) The method according to claim 23, wherein the thumbnails reflect the video outputs of the virtual machines in real time.

30. (Currently amended) A method performed in a single computer configured with a plurality of virtual machines with associated guest operating systems running on the single computer, and software for managing the virtual machines, the virtual machines each comprising a virtual video adaptor having a video RAM, the computer being configured to execute the virtual machines concurrently on the computer, the method comprising:

storing images from the video RAMs in main memory of the computer;

accessing the video RAMs of the virtual machines to obtain images from the video RAMS;

generating thumbnail images of the images obtained from the video RAMs based on video adaptor settings of the virtual video adaptors; and

concurrently displaying the thumbnail images that are continually updated.

31. (Previously presented) The method according to claim 30, the method further comprising:

determining display modes corresponding to, respectively, the video RAMs of the virtual machines; and

generating the thumbnail images in accordance with the display modes.

32. (Previously presented) The method according to claim 30, wherein the thumbnail images are displayed to reflect the video RAMs in real time.

33. (Currently amended) A method, comprising:
executing an emulator, the emulator configured to emulate virtual machines having virtual video adaptors;
executing guest operating systems on the virtual machines;
storing image data received from the virtual video adaptors in memory;
interpreting the image data received from the virtual video adaptors based on video adaptor settings of the virtual video adaptors; and
displaying thumbnail images generated from the image data corresponding to
~~respective virtual machines configured to host concurrently executable guest operating systems on a host computer that is a single computer,~~ where the thumbnail images are displayed together and updated continually, ~~and where the images comprise reduced portions of at least portions of display outputs outputted for display by the respective virtual machines.~~
34. (Previously presented) The method according to claim 33, wherein the displaying further comprises displaying the images in a graphical user interface that can be interacted with by a user to control execution of the virtual machines.